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that believe in progress; and these scientific journals for the young are one of the agencies by which this state of things is to be brought about.

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GENERAL NOTES.

GEOGRAPHY AND TRAVELS.¹

AFRICA.—*The Sahara*.—Dr. Oscar Lenz has published his work on “Timbuktu” and is preparing to set out on a new expedition. His exploration of 1879–80 comprised (1) Morocco and the Atlas ranges as far as the Draa basin, and (2) the Western Sahara. Dr. Lenz traveled with only two interpreters and a trusty Moroccan attendant, yet thanks to a letter of recommendation from the Sultan of Morocco, and his assumption of the character of a Mussulman physician, he passed safely through the fanatical tribes on the route. The stony and sandy tracts of the Western Sahara are produced by the weathering of sandstone, quartz and carboniferous limestones, and have a mean elevation of from 800 to 1000 feet. Dried-up watercourses, with deep eroded channels, radiate from the central highlands north and north-east to the Mediterranean, east to the Nile, south to the Tsad and Niger, and west to the Atlantic. The conclusion seems to be that up to comparatively recent times the Sahara was a well-watered and wooded region, mostly inhabited by pastoral and agricultural communities, the descendants of more primitive peoples who were contemporary with Palæolithic and Neolithic man elsewhere. In the Taudeni district, about 20° N., under the meridian of Timbuktu, Dr. Lenz found some well-worked greenstone implements. Gerhard Rohlfs has found similar objects as far east as the Kufara oasis south of Tripoli. The Asiatic camel is a comparatively recent intruder. The crocodile still survives in many of the pools and lakelets which here and there mark the course of mighty streams. Dr. Lenz believes the desiccation to have taken place during the historic period, and attributes it largely to the reckless destruction of the woodlands. As vegetation disappeared so did moisture, the large fauna became extinct, and the settled populations were succeeded by nomad Berbers and Semites. The fortifications of Timbuktu were razed upon its capture by the Fulahs in 1826, and since then it has been a purely commercial town, but a constant bone of contention between the Tuariks and the Fulahs, which levy dues but leave the administration in the hands of the Kahia. Dr. Lenz affiliates the Fulahs to the Nubas, but A. H. Keane, in his review of the work, in *Nature*, considers this an error. The Fulahs are distinctly non-Negro, and Dr. Lenz notices the resemblance to Europeans of full-blood specimens.

M. Giraud's Expedition.—M. V. Giraud, in his account of two years among the Central African lakes, delivered before the Geo-

¹ This department is edited by W. N. LOCKINGTON, Philadelphia.

graphical Society of Paris, states that his strongest impression is the state of extreme misery in which the natives live, a misery due partly to their own laziness, but partly to the sterility of the soil. The harvest is in June, but in three months the crop is consumed, and during the rest of the year they live on wild honey, roots, fungi and wild fruits. At this season the paths are strewn with corpses. M. Giraud believes that the population is always decreasing. The only two metals found were iron and copper. It must be remembered that M. Giraud had a most discouraging experience.

Recent Acquisitions of Spain.—Spain has recently acquired considerable territory in Africa, comprising the west coast of the Sahara between Cape Bogador ($20^{\circ} 9' N.$) and Cape Blanco ($20^{\circ} 45' N.$), both included; and in the Gulf of Guinea the coast line from the Muni river, which forms the northern boundary of the French possessions on the Gaboon, to the Rio Campo ($0^{\circ} 43'$ to $2^{\circ} 41' N.$). Six stations have already been established on the Sahara coast, and all points giving access to shipping will be permanently occupied. Old treaties with the chiefs on the Rio Benito have been renewed, with a view to prevent the threatened advance of the French in that direction.

The Kingdom of the Congo.—The limits of the new “Kingdom of the Congo,” as recognized by the late Berlin conference, appear to be as follows: On the Atlantic seaboard from Banana point to Yabé ($5^{\circ} 45' S. lat.$), then by one parallel of Yabé to the meridian of Ponta da Lenha, by this meridian north to the Chiloango, then to the source of that river, thence to the Mtombo-Mataca falls of the Congo, leaving to the French the station of Mboco, but reserving Mucumbi and Manyanga, then along the Congo to its confluence with the Bumba beyond the equator, where the boundary running north-west remains to be determined. The southern frontier follows the Congo from Banana to a point a little above Nokki, the south bank belonging to Portugal, then on the parallel of Nokki to the Qwango, along this river to about $9^{\circ} S. lat.$, and thence in a diagonal line across the continent to Lake Bangweolo. Eastwards the boundary coincides with the west coasts of lakes Bangweolo, Tanganyika, Muta-Nzighe and Albert Nyanza. Within these limits the new State will have an approximate area of 1,000,000 square miles and a population of probably 40,000,000, mostly of Bantu speech and Negro or Negroid stock.

The Red Sea Coast.—Sir R. W. Rawson (Proc. Roy. Geog. Soc., Feb., 1885) contributes a long and learned article upon “European Territorial claims on the coast of the Red sea and its southern approaches.” Many facts in the history of Abyssinia are given, and the grounds of the various claims discussed. The truncated triangle of lowland between Abyssinia and the Red sea

does not seem to have ever been practically in the hands of Abyssinia, and the rule of Turkey and Egypt has been nominal. According to the "*Geographie Universelle*," of Reclus, the area of this tract is about 54,000 square miles, and its population about 300,000. It is practically a desert, and its inhabitants are the nomad Danakil and other similar tribes. There is very little water, the chief river being the Hawash, which runs into lake Aussa, and then forms a brackish lake called Abhebad, about sixty-five miles from Tajura. The stream issuing from this lake fails to reach the sea, and terminates thirty-six miles from Tajura. Obock, the French possession outside the straits of Bab-el-Mandeb, has sixty-two miles of coast, and an area of 1470 square miles. It has not as yet any attraction for settlers, since it is without water, cattle, or vegetables. The first can, however, be procured from the Hawash basin, and cattle can be brought from Somali-land. The real drawbacks are the situation and character of the harbor and its position fifty or sixty miles from the route to India and the East. Sagallo, thirty-seven miles from Obock, has also been ceded to France by the local sultan. This place lies on the road from Ankober, the capital of Shoa, to Tajura, the chief place of export of King Menelik's country. King Menelik, according to M. Bramond, dreams of railroads through his dominions, and of steamers on the Hawash to Lake Aussa.

The territory of Assab, now in the hands of Italy, includes the bay of that name, with all its islands and the coast line from Ras Darmah, the eastern point of the Bay of Beilul, in N. lat. $13^{\circ} 14'$ to Ras Sintiyar, the south-east point of the Bay of Assab, in N. lat. $12^{\circ} 53'$. The belt of territory purchased from the local sultans by Italy is from two to six miles wide and thirty-five miles long.

African News.—From the remarks of Mr. J. M. Cook, who has recently returned from Dongola, it appears that the cataracts of the Nile are not correctly placed upon the map. The so-called third cataract at Hannek is no cataract at all, only a very small rapid. Between the second and so-called third cataracts four or five cataracts occur, and these explain the delay in the concentration of the British troops at Dongola. From Sarras to Sakarmatta (seventy-four miles), the rise was 450 feet.—A fresh expedition in Somali-land has been undertaken by Messrs. F. L. and W. D. James, who writes from Berbera that they intend to traverse the Habr Gerhajis's country to Lebiholii, whence five days over the desert will bring them to Ogaden. They have a guard of seventeen Somalis collected at Aden.—The map of Africa, on a scale of twenty-seven geographical miles to the inch, in course of publication by the *Depôt de la Guerre*, will consist of sixty sheets. Twenty-four of these have been published, eighteen of West and Central Africa, six of South Africa and Cape Colony. Sheet 9 shows the Canaries and the sterile country called by Dr. Barth "*Tiris el Ferar*,"

or the country of deep wells; sheet No. 10 gives the western half of the Sahara, and shows the routes of travelers, with many notes on the inhabitants, nature of the country, and position of the oases and wells and sheet No. 11 has a portion of the Ahaggar region, of which little is really known, and the better known Tuat oasis—M. Giraud has finally been compelled to desist from his attempted explorations. His men deserted him, retaining the French flag and Chassepôt rifles, and turned highwaymen on their way back to Zanzibar, where they were cast into prison by the French consul.—Major Serpa Pinto is at Mjuani, on the shores of the fine harbor of Nakala, which extends inward from Fernão Veloso bay.—M. F. S. Arnot has sent to the Royal Geographical Society a sketch-map of his route from Shoshong to Bihe. He followed the Zambesi, from his point of crossing, a little above Victoria falls to Lialui, from which he proceeded west-north-west to the great plateau on which Bihe is situated.—Petermann's *Mittheilungen* (31 Band, 1885, III) contains a map of Zululand and the gold fields of the South African republic, with a description. The previous issue gives a chart of Stellaland.

GEOLOGY AND PALÆONTOLOGY.

SIR WILLIAM DAWSON ON THE MESOZOIC FLORAS OF THE ROCKY MOUNTAIN REGION OF CANADA.¹—In a previous memoir, published in the *Transactions of the Royal Society of Canada*, Vol. I, the author had noticed a Lower Cretaceous flora consisting wholly of pines and cycads, occurring in the Queen Charlotte islands, and had described a dicotyledonous flora of Middle Cretaceous age from the country adjacent to the Peace river, and also the rich Upper Cretaceous flora of the coal formation of Vancouver's island—comparing these with the flora of the Laramie series of the Northwest Territory, which he believed to constitute a transition group connecting the Upper Cretaceous with the Eocene Tertiary.

The present paper referred more particularly to a remarkable Jurasso-cretaceous flora recently discovered by Dr. G. M. Dawson in the Rocky mountains, and to intermediate groups of plants between this and the Middle Cretaceous, serving to extend greatly our knowledge of the Lower Cretaceous flora, and to render more complete the series of plants between this and the Laramie.

The oldest of these floras is found in beds which it is proposed to call the Kootanie group, from a tribe of Indians of that name who hunted over that part of the Rocky mountains between the 49th and 52d parallels. Plants of this age have been found on the branches of the Old Man river, on the Martin creek, at Coal

¹ Read before the Royal Society of Canada, May, 1885.